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April 14, 1999

BY MESSENGER
Ms. Magalie Roman Salas
Office of the Secretary
Federal Communications Commission
The Portals
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: *SBC Communications Inc. and Ameritech Corp.*
(CC Docket No. 98-141)

Dear Ms. Salas:

SBC Communications Inc. and Ameritech Corporation submitted a faxed copy of the enclosed paper, "Report to the FCC on Supplemental Analysis of the Katz/Salop Hypothesis," to the Commission yesterday as part of an *Ex Parte* filing. Please associate the enclosed original copies of that paper with the filing submitted yesterday.

Please let me know if you have any questions.

Very truly yours,

Paul K. Mancini

PAUL K. MANCINI
General Attorney
and Assistant General Counsel
SBC Communications Inc.

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Enclosures

cc: Robert C. Atkinson, Deputy Chief, Common Carrier Bureau
Thomas Krattenmaker, Office of Plans & Policy

REPORT TO THE FCC ON SUPPLEMENTAL ANALYSIS OF THE KATZ/SALOP HYPOTHESIS

Dennis Carlton and Hal Sider

April 13, 1999

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REPORT TO THE FCC ON SUPPLEMENTAL ANALYSIS OF THE KATZ/SALOP HYPOTHESIS

Dennis Carlton and Hal Sider[1]

April 13, 1999

1. This memorandum provides further economic analysis of the theory, advanced principally by Profs. Michael Katz and Steven Salop on behalf of Sprint, that the SBC/Ameritech merger will lead to increased discrimination against competitive local exchange carriers (CLECs) seeking to enter the local exchange business. We show that the theory is based on unsupported, indeed incorrect, assumptions and that the anecdotal evidence recently presented by Prof. Katz and his colleagues John Hayes and Jith Jayaratne in fact does not support the proposition that the proposed merger will adversely affect CLEC activity.[2] We show that the data analyzed by Prof. Katz and his colleagues, when subjected to a systematic and rigorous econometric analysis, provide no support for the Katz/Salop hypothesis.

2. Section I of this memorandum reviews the series of assumptions that underlie the Katz/Salop hypothesis and show that these assumptions do not accurately characterize, and indeed ignore, current conditions in the marketplace for local exchange services.

3. Section II presents a comprehensive empirical analysis of Katz/Salop theory. We conduct a variety of econometric analyses to test predictions implied by the theory. Our analyses use available information on CLEC activity throughout the United States, apply well-accepted econometric techniques, and control for a variety of economic factors that influence the level of CLEC activity in an area.

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1. Dr. Carlton is Professor of Business Economics at the Graduate School of Business at the University of Chicago and President of Lexecon Inc. Dr. Sider is a Vice-President of Lexecon Inc.
2. John Hayes, Jith Jayaratne and Michael Katz, "An Empirical Analysis of the Footprint Effects of Mergers Between large ILECs" (April 1, 1999). The analysis presented in our paper was undertaken prior to Sprint's submission, but nonetheless addresses the principal questions raised in that paper.

4. The specific predictions of the Katz/Salop hypothesis that we test and our findings are as follows:

- The Katz/Salop hypothesis predicts that overall CLEC activity throughout the United States would decline following the SBC/PacTel and Bell Atlantic/NYNEX mergers in 1997. The data demonstrate that this prediction is wrong, as CLEC activity continues to increase rapidly.
- The Katz/Salop hypothesis predicts that CLEC activity today would be lower in the areas served by the merged ILECs than compared to otherwise comparable areas. The results of an econometric analysis of CLEC activity throughout the United States that controls for area characteristics refute this prediction.
- The Katz/Salop hypothesis predicts that past ILEC mergers would have a systematic, strong and statistically significant negative effect on CLEC activity. Our econometric analysis refutes this prediction as we find no such effect.
- The Katz/Salop hypothesis predicts that CLEC activity would be systematically higher in areas served by small ILECs relative to otherwise comparable areas. Again, econometric analysis of the data refute this prediction.

5. Instead of an econometric analysis of all available data, which yields results universally inconsistent with the predictions of the Katz/Salop hypothesis, Prof. Katz and his colleagues have used the same underlying data but have employed a selective anecdotal approach to address these questions. Given the availability of comprehensive data, such an anecdotal approach cannot provide a scientifically valid basis to reach conclusions about the validity of the Katz/Salop hypothesis.

6. We conclude based on our analysis of the Katz/Salop theory the "negative spillover" or "big footprint" hypothesis put forward by Prof. Katz and Salop provides no basis for finding that the SBC/Ameritech merger will harm competition.

I. THE KATZ/SALOP THEORY LACKS A COMPELLING THEORETICAL AND EMPIRICAL BASIS.

A. THE KATZ/SALOP THEORY IS BASED ON A SERIES OF UNSUPPORTED ASSUMPTIONS

7. In their affidavit submitted to the FCC with Sprint's opposition to the SBC/Ameritech transaction, Profs. Katz and Salop discuss at great length their view that ILECs *already* have an incentive to discriminate against CLECs. However, it is only their brief discussion of the incremental effect of the merger on these incentives that is relevant to the pending review and that provides the basis for their theory that efforts to block entry by national (or at least multi-regional) CLECs will increase significantly as the result of adding the five Ameritech states to the eight currently served by SBC.[3]

8. Katz and Salop explain their theory as follows: First, an "exclusionary access policy by one ILEC directed toward multi-market CLECs can also benefit other ILECs. This will occur when harming the CLECs in one region weakens their ability or incentive to compete in another region . . . ." (Katz/Salop, ¶ 69). Such "cross-region effects" can arise, they contend, due to possible economies of scope in the provision of CLEC service, which make it more efficient for a CLEC to operate in multiple areas instead of a single area:

> Even if the multiple local markets are distinct, there may be common research, product development, supporting software development, and promotional costs for a CLEC entrant. In deciding whether to enter the business at all, a potential carrier will evaluate its overall expected profits for entry. ... Thus, an ILEC's actions that reduce the profitability of entry in one region can lower the likelihood of entry in all regions. (Katz/Salop, ¶ 70).

9. It is clear from these brief statements that Profs. Katz's and Salop's conclusion that the proposed merger will have a significant adverse effect on CLEC activity rests critically on the assumptions that:

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3. The paper by Hayes, Jayaratne and Katz recapitulates the analysis presented by Prof. Katz and Salop but does not present new theoretical arguments regarding the effect of mergers on ILEC's incentive or ability to discriminate.

- Discrimination by an ILEC creates significant external benefits to ILECs in other regions by discouraging CLECs from entering into all areas; and the proposed merger significantly increases an ILEC's incentive to discriminate by enabling it to capture a significant amount of these external benefits.
- An ILEC will act on its increased incentives to discriminate and engage in additional discrimination despite a variety of forms of oversight, including scrutiny of their behavior by regulators and CLECs.
- The increased discrimination resulting from the merger will discourage CLECs from undertaking investments in the multi-market "set up costs" (e.g., research, development, marketing etc.) that are the common to the provision of CLEC service in all areas and thus will discourage future CLECs entry.
- The resulting increase in discrimination is significant and will have a material adverse effect on competition.

10. Profs. Katz's and Salop's earlier declaration, and the recent submission by Prof. Katz and his colleagues discuss at great lengths their views that ILECs today have a strong incentive to discriminate against CLECs (in order to preserve their existing customer base) as well as the ability to do so. Despite these strong existing incentives, they argue that the proposed transaction will make these incentives even greater and lead to significantly more discriminatory conduct.

11. Profs. Katz and Salop and their colleagues, however, have undertaken no effort to quantify the extent to which discrimination incentives are affected by the proposed transaction. Specifically, they present no evidence regarding: (1) the magnitude of external benefits of discrimination relative to internal benefits; (2) the extent to which capture of external benefits as a result of the merger affects the overall incentive to discriminate; and (3) how this increased incentive will be reflected in additional discriminatory conduct; and (4) the extent to which this assumed increased in discriminatory conduct would lead to decreased CLEC activity.

Without quantification of any of these elements, there is no basis to conclude that the hypothesized increased incentive to discriminate is material in any way.

12. More specifically, Prof. Katz and Salop provide no basis to assume that the external benefits of discrimination they focus on are large relative to the "traditional" direct benefits resulting from excluding rivals. Moreover, the proposed merger enables SBC to capture only a small fraction of the presumed external benefits of discrimination. If external benefits are small relative to "internal" benefits, then incentives to discriminate are unlikely to be affected by a merger.

13. With respect to understanding how any increased incentive to discriminate is translated into increased discrimination, it is important to recognize that the Katz/Salop theory suggests only that the proposed merger increases an ILEC's incentive to discriminate. The theory does not imply that the merger will improve a firm's ability to discriminate. In other words, unless Profs. Katz and Salop can also show that a bigger "footprint" significantly increases the difficulty of CLECs and regulators to detect discrimination or significantly diminishes the risk of legal sanctions that that ILEC would face in the event that discrimination is detected, it does not follow that their theory implies that a merger will significantly increase an ILEC's ability to discriminate.

14. Certainly, the ability of regulators and CLECs to detect discrimination is much greater today than in the past given: (1) the large number of interconnection agreements that have been negotiated and implemented between CLECs and ILECs; (2) the establishment and availability of accepted standards for measuring ILEC performance in providing service to CLECs; and (3) the sophistication of large multi-region (and in some cases vertically-integrated) CLECs that are the purported target of the hypothesized increase in discrimination.[4]

4. For example, Sprint is a local exchange carrier as well as a provider of CLEC services. It can readily use its own experience in providing interconnection between its ION service with its own local exchange facilities as a benchmark for evaluating the performance of other ILECs in providing interconnection.

15. In addition, it is important not to ignore that the 1996 Act incorporates very strong incentives for ILECs not to discriminate against CLECs through the promise of entry into long distance. For SBC, the merger increases this incentive to avoid discrimination because long distance authority is an important component of its National/Local plan. Moreover, there is no reason to think that, as Prof. Katz and his colleagues suggest, that incentives to discriminate will return once SBC receives authority to provide long distance service. In addition to other legal remedies, the ability of the FCC to rescind long distance authority, or even the threat that it could, remains a devastatingly strong incentive for ILECs to avoid discriminatory behavior, especially for SBC with its National/Local plan.

B. PROF. KATZ AND HIS COLLEAGUES HAVE PRESENTED NO EMPIRICAL EVIDENCE THAT SUPPORTS THEIR THEORY.

16. The new "empirical analysis" presented by Prof. Katz and his colleagues fails to provide empirical support for the assumptions that underlie the Katz/Salop model and the claim that that the merger will adversely affect competition by increasing discrimination. The principal flaw in the empirical analysis by Prof. Katz and his colleagues is their failure to undertake a systematic analysis of all available data and their reliance instead on selected anecdotes. In large part, these anecdotes are drawn from the same data we have used for our statistical analysis, but we have examined all available information using well-recognized econometric techniques.

17. The shortcomings of an anecdotal approach are well recognized:

- Such an approach fails to identify whether the examples presented are statistically significant deviations from typical patterns or instead are within the "normal" range of variation.
- Such an approach fails adequately to control for measurable economic and demographic factors in determining whether the observed patterns provide support for a particular hypothesis.

- Perhaps most importantly, however, anecdotes can be used selectively. As a matter of economic methodology, it is inappropriate to highlight certain examples that appear to support a given hypothesis while ignoring others that fail to provide such support. That is, anecdotes do not allow for conclusions that an effect is systematic.

18. The "empirical analysis" presented by Hayes, Jayaratne and Katz suffers from each of these shortcomings. Although our findings make a point-by-point critique of the analysis presented by Prof. Katz and his colleagues unnecessary, it is important to note the following:

- Prof. Katz and his colleagues note on page 22 of their April 1 report that CLEC entry in California did not increase as fast as elsewhere after the SBC/PacTel merger, but fail to note that entry in Texas and SBC's other states grew more rapidly than elsewhere, a result that undermines the Katz/Salop hypothesis which suggests that CLEC activity would fall throughout the merged ILEC's territory.
- Prof. Katz and his colleagues fail to note that CLEC activity in areas served by Bell Atlantic and NYNEX did not slow relative to other areas following the merger of these firms, as the Katz/Salop hypothesis predicts.
- In comparing CLEC activity in areas served by large and small ILECs, Prof. Katz and his colleagues suggest that selected independent ILECs, including Frontier and Cincinnati Bell, have more CLEC activity than elsewhere, but fail to report that other small ILECs, including Sprint, have less CLEC activity than elsewhere.
- Prof. Katz and his colleagues fail to control for factors, such as LATA population or population growth, that affect observed CLEC activity.
- Prof. Katz and his colleagues fail to present any analysis indicating whether the observed patterns they report are statistically significant.
- Prof. Katz and his colleagues fail to present any tables that summarize their results and describe their calculations. This makes it impossible even to verify whether they have correctly performed the calculations that they report.

19. There is no rationale for relying on selected anecdotes instead of the results of a comprehensive and systematic analysis when, as here, the appropriate data are readily available. Similarly, there is no rationale for failing to report results in a manner in which they can be verified by other analysts.

C. THE HIGH LEVEL OF CLEC ACTIVITY TODAY IMPLIES THAT ASSUMPTIONS THAT UNDERLIE THE KATZ/SALOP MODEL ARE NOT VALID.

20. There is no dispute that there has been a dramatic increase in CLEC activity in recent years:

- In the first quarter of 1996 (prior to the Bell Atlantic/NYNEX and SBC/PacTel mergers), only 18% of LATAs had one or more local service competitor holding numbering codes. By the third quarter of 1998, approximately 84% of LATAs had one or more such competitors.[5]
- Over this same time period, the number of local service competitors (nationwide) holding numbering codes rose from 15 to 146, and the total number of CLECs in all LATAs (*i.e.*, when a CLEC is counted once for each LATA where it holds numbering codes) rose from 78 to 726.[6] The rapid growth in CLEC activity is illustrated by the increase over this period in the number of LATAs in which AT&T held codes, from 0 to 82, and the number of LATAs in which MCI held codes, from 12 to 32.[7]

21. The high level of CLEC activity today indicates that the assumptions that underlie the Katz/Salop hypothesis are not valid.

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5. FCC, Local Competition Report, Table 4.2.
6. FCC, Local Competition Report, Table 4.1.
7. For consistency in reporting the growth in CLEC activity, the FCC data do not aggregate firms that have merged, such as MCI and WorldCom.

22. First, the high level of CLEC activity provides indisputable marketplace evidence that discrimination is not the significant regulatory problem that Profs. Katz and Salop suggest. It is inconceivable that large-scale entry (and investment) by highly sophisticated companies such as AT&T, Sprint and MCI WorldCom, would be observed if discrimination was as significant and pervasive a problem as suggested by proponents of discrimination theories. SBC's commitment to the National/Local plan, which requires interconnection with other ILECs, is further evidence that discrimination concerns are not deterring entry. This marketplace evidence is inconsistent with Sprint's position that discrimination concerns are an overarching consideration in making investment decisions.

23. Second, the incremental incentive for ILEC's to discriminate discussed by Profs. Katz and Salop would have no relevance to the many CLECs' that have already have incurred the multi-market setup costs that they claim give rise to economies of scope. These costs are incurred by the time, or before, CLECs enter into the provision of service in any local area. The "bigger footprint" would not affect these CLEC's activities where investments have already been made. Moreover, in light of the large sunk costs, the merger would have little effect on the expansion of existing CLECs into additional local areas.

24. The existence of multiple CLECs that already have incurred these set up costs also reduces or eliminates any incremental incentive by ILECs to keep out new CLECs that might be claimed to result from the proposed merger. Entry to date by a significant number of existing CLECs has already changed the competitive conditions facing ILECs. Where CLEC competition already is strong, any attempt to discriminate against new entrants would not be effective in preventing local exchange competition because the numerous CLECs are already in place and would remain in place and preserve competition.

25. Moreover, as mentioned above, the existence of numerous CLECs already in place significantly reduces not only an ILEC's incentive to discriminate but also its ability to do so. Any incremental discrimination against existing CLECs would be likely to be detected by

those CLECs and regulators more readily than in the past. Since the earlier ILEC mergers, a large number of interconnection agreements have been negotiated and a variety of performance standards have been established.[8] Hence, any change in ILEC behavior is far more likely to be detected and punished through contract and regulatory remedies than in the past. The CLECs already in place become "benchmarks" for new CLECs and thus limit the ability of ILECs to discriminate without detection.

26. The Katz/Salop theory thus has no applicability to the marketplace today, whatever its potential merit might have been in connection with prior ILEC mergers, when fewer CLECs had invested in the set up costs that give rise to economies of scope; when fewer CLECs had significant sunk investments in facilities and services; and when monitoring of ILEC performance was less sophisticated.[9] As discussed below, however, the evidence shows that, contrary to the prediction of the Katz/Salop theory, even those earlier mergers that occurred during a time when the industry was at more risk of harm resulting from discrimination, did not lead to reduced amounts of CLEC entry in regions served by the merged firms.[10]

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8. SWBT, Pacific Bell and Nevada Bell ("SBC's ILECs") have recently negotiated an elaborate set of performance measurements and accompanying performance standards with the relevant state PUCs and CLECs which measure the quality of performance that SBC's ILECs provide to CLECs for Operations Support Systems, interconnection and operator services. Performance reports are posted monthly on SBC's website and are available to each CLEC and to federal and state regulators providing such interested parties the ability to assess the quality of performance provided by SBC's ILECs.
9. Hayes, Jayaratne and Katz suggest (p. 22-23) that the proposed ILEC mergers will have a greater adverse affect than the past mergers. Their discussion ignores the fact that may CLECs have already deployed facilities and services. As we demonstrate below, no such effect occurred following prior mergers.
10. For the same reasons we reject the contention made by Prof. Katz and his colleagues that two years is too little time to identify whether past ILEC mergers have affected CLEC activity. Given the high level of CLEC activity since the last ILEC mergers, if no adverse effect from past ILEC mergers is observed given the high level of CLEC activity over this period, it is unlikely that one will be identified in the future.

II. SYSTEMATIC ANALYSIS OF EMPIRICAL EVIDENCE FAILS TO SUPPORT THE KATZ/SALOP HYPOTHESIS THAT ILEC MERGERS ADVERSELY AFFECT CLEC ACTIVITY.

27. For the reasons set forth above, the anecdotal evidence put forward to support the Katz/Salop theory should be rejected because it is not based on a systematic analysis of the available data. In this section, we go further and explain that a comprehensive analysis of the available data demonstrates conclusively that the Katz/Salop theory has no merit. Thus, if the Katz/Salop theory was ever to have any application, it would have been either before enactment of the Telecommunications Act of 1996 or shortly thereafter. Of course, two major ILEC mergers were completed in 1997 (SBC/PacTel and Bell Atlantic/NYNEX), and these mergers provide a basis to test empirically the predictions of the Katz/Salop theory. Profs. Katz and Salop, however, do not provide any empirical analysis of the impact of prior ILEC mergers.

28. Although Profs. Katz and Salop present no systematic evidence to support their conclusion that the proposed merger will adversely affect CLEC activity, their theory can be tested empirically. For example, their theory predicts that: (i) past ILEC mergers would have a strong and statistically significant adverse effect on CLEC activity both nationwide and, especially, in the merged ILECs' territories; and (ii) large ILECs, including RBOCs, would have a greater incentive to discriminate than small ILECs and, as a result, there would be significantly more CLEC activity in the smaller ILECs' territories than in otherwise comparable areas served by RBOCs. If the data fail to support these hypotheses, as is demonstrated below, the Katz/Salop theory must be rejected.

29. This section analyzes the Katz/Salop theory using available data on CLEC activity. We have performed several related empirical analyses in an attempt to test various aspects of the Katz/Salop theory.

- We first look at CLEC activity on a nationwide basis to see whether CLEC activity fell following past ILEC mergers.

- We analyze whether past ILEC mergers have resulted in a reduction in CLEC activity in areas served by the merged companies relative to the level expected absent the merger.
- We compare the current level of CLEC activity in LATAs served by small ILECs, such as SNET, Cincinnati Bell, and others with that in otherwise comparable LATAs served principally by RBOCs. The analysis addresses Prof. Katz's statement at the FCC Roundtable on February 5, 1999 that independent ILECs have less incentive to discriminate than RBOCs, which due to their size can capture more of the external effects of discrimination.[11]
- We compare the current level of CLEC activity in LATAs served by multiple ILECs to that in LATAs served primarily by a single ILEC. The Katz/Salop theory implies that ILECs in LATAs "shared" by multiple ILECs have a weaker incentive to discriminate because such actions can result in significant benefits to neighboring ILECs. In contrast, ILECs that provide virtually all the service in a LATA would be able to capture this purported externality and would have a greater incentive to discriminate.

30. With respect to each of these empirical analyses, the evidence fails to support the Katz/Salop theory. These results are robust and do not change materially when we alter various aspects of the econometric specification.[12]

11. The recent white paper by Prof. Katz and his colleagues presents anecdotal evidence that they claim supports this point. Instead, as shown below, this conclusion is a result of the fact that ILECs selected by Hayes, Jayaratne and Katz and are not representative of all independent ILECs.
12. For example, exclusion of the New York and Los Angeles LATAs, the most populous LATAs which are both in merged ILECs' territories does not materially affect our results or conclusions. Similarly, the exclusion of small CLECs that operate in 3 or fewer LATAs from our measure of CLEC activity does not materially affect our results or conclusions.

A. ANALYTICAL FRAMEWORK

31. Our test of the Katz/Salop theory focuses on CLEC activity as measured by the number of firms that have been assigned numbering codes in each LATA.[13] These data are reported by the FCC on a quarterly basis and are derived from the Local Exchange Routing Guide (LERG), a database used by ILECs to identify the location and owner of equipment used in the public switched network. While the FCC data do not measure the intensity of CLEC activity, they reflect the most comprehensive information available on CLEC activity over time on a detailed geographic basis. These data are relied upon by the FCC to track new entry of local service providers.[14] Hayes, Jayaratne and Katz also rely on these data to track CLEC activity in their recent analysis of "footprint effect."

32. The analysis also requires identification of the ILECs that operate in each LATA. This determination is based on information on the population by "wire center," the area served by each local switch operated by any ILEC.[15] Combined with data that relate wire centers to LATAs, we estimate the population served by each ILEC within each LATA.[16] We use this information to identify the ILEC with the greatest population coverage in the LATA.[17] A list

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13. The FCC Local Competition report (p. 41) explains that:

> [i]n order to receive one or more numbering codes in an area, local exchange carriers must be licensed or certified to operate in an area, if required by a state regulatory authority, and must demonstrate that all applicable regulatory authority required to provide service has been obtained. Assignment of a numbering code in a particular area does not indicate that the carrier assigned the code is providing service in the area. Reservation of codes is permitted to accommodate technical and planning constraints. However, if a reserved code is not activated within eighteen months, the codes will be released from reservation.

All facilities-based carriers will receive numbering codes; some pure resellers of local service receive codes and others do not.

14. FCC, Local Competition, p.41.
15. These data were obtained from MapInfo, Inc.
16. This mapping was derived from Local Exchange Routing Guide (LERG) tapes obtained from SBC.
17. We also use these data to calculate the concentration of ILEC activity within a LATA using the Hirschman-Herfindahl index (HHI), which is calculated as the sum of the squares of the shares for each ILEC within a LATA.

identifying the ILEC with the greatest population coverage in each LATA is present in Appendix 1.

33. Many of the analyses presented below use regression analysis to estimate differences in CLEC activity between, for example, SBC/PacTel LATAs and elsewhere. Regression analysis is a standard statistical tool used to estimate the separate relationship between a particular variable of interest (here, the number of CLECs per LATA) and each of a number of other factors. In our analysis, these factors include the population of the LATA, population growth in the LATA between 1990-98, and the area of the LATA. [18]

34. Differences in CLEC activity in LATAs served by SBC/PacTel, Bell Atlantic/NYNEX and other RBOCs are estimated in this model using categorical "dummy" variables identifying LATAs served principally by these firms. The regression approach yields estimates of differences in CLEC activity in, for example, SBC/PacTel compared to other areas that "hold constant" (or "control for") the other factors included in the regression. We refer to this estimated difference as the "SBC/PacTel effect," which reflects an "apples to apples" comparison of CLEC activity that controls for differences in the population and population growth in SBC/PacTel LATAs and elsewhere.[19]

35. The particular specification of the regression model we apply allows the size of the estimated "SBC/PacTel effect" and "Bell Atlantic/NYNEX effect" to vary with LATA population. Thus, the magnitude of the "SBC/PacTel effect" is not constrained to be the same in large and small LATAs. [20]

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18. Quadratic and interaction terms for population and population growth are used to account for potential nonlinearities in the estimated relationship between these variables and CLEC activity. We also include variables identifying LATAs served predominantly by non-RBOCs.
19. An essential part of the Katz/Salop theory is that an ILEC merger will lead to reduced CLEC activity throughout the areas served by the post-merger firm. Therefore, the appropriate test of the "footprint" theory is to analyze CLEC entry in the combined SBC/PacTel area and the combined Bell Atlantic/NYNEX area.
20. Our statistical analysis also corrects for potential heteroskedasticity using White's method.

B. CLEC ACTIVITY NATIONWIDE HAS CONTINUED TO GROW RAPIDLY SINCE THE PAST ILEC MERGERS.

36. The Katz/Salop model implies that past RBOC mergers would have discouraged CLEC activity nationwide as increased discrimination incentives in the merged companies' territories would deter CLEC entry in all areas. The FCC approved the SBC/PacTel merger in January 1997 and Bell Atlantic/NYNEX merger in August 1997.[21] The merged companies have roughly doubled the number of access lines that each separate company had before the merger. As discussed above, if the Katz/Salop theory is correct, the entry-deterring effects of discrimination by ILECs would be expected to be greater in the aftermath of these past mergers than today, when many more CLECs have deployed facilities and undertaken significant sunk investments in multi-market set up costs, and discrimination would be observable.

37. Empirical analysis, however, fails to support the theory. The average number of CLECs holding numbering codes per LATA has grown dramatically in recent years. Figure 1a presents both the simple and population-weighted average number of CLECs per LATA nationwide on a quarterly basis since 1996. The population-weighted measure provides a more representative measure of the extent to which the average person has faced increased CLEC activity over time. Figure 1b presents similar data for LATAs served by SBC/PacTel.

38. Rather than the reduction in CLEC activity that the Katz/Salop theory predicts, the data show that CLEC activity has continued to increase both nationwide and in areas served by SBC/PacTel. Focussing on the population-weighted figures, in the year preceding the FCC's approval of the SBC/PacTel merger in January 1997, the average number of CLECs with numbering codes per LATA increased by 1.9 per LATA (to 3.2). The growth in this average was larger in the year following FCC approval, increasing by 3.2 per LATA (to 6.4). CLEC activity has continued to grow since that time -- the population-weighted number of CLECs per LATA

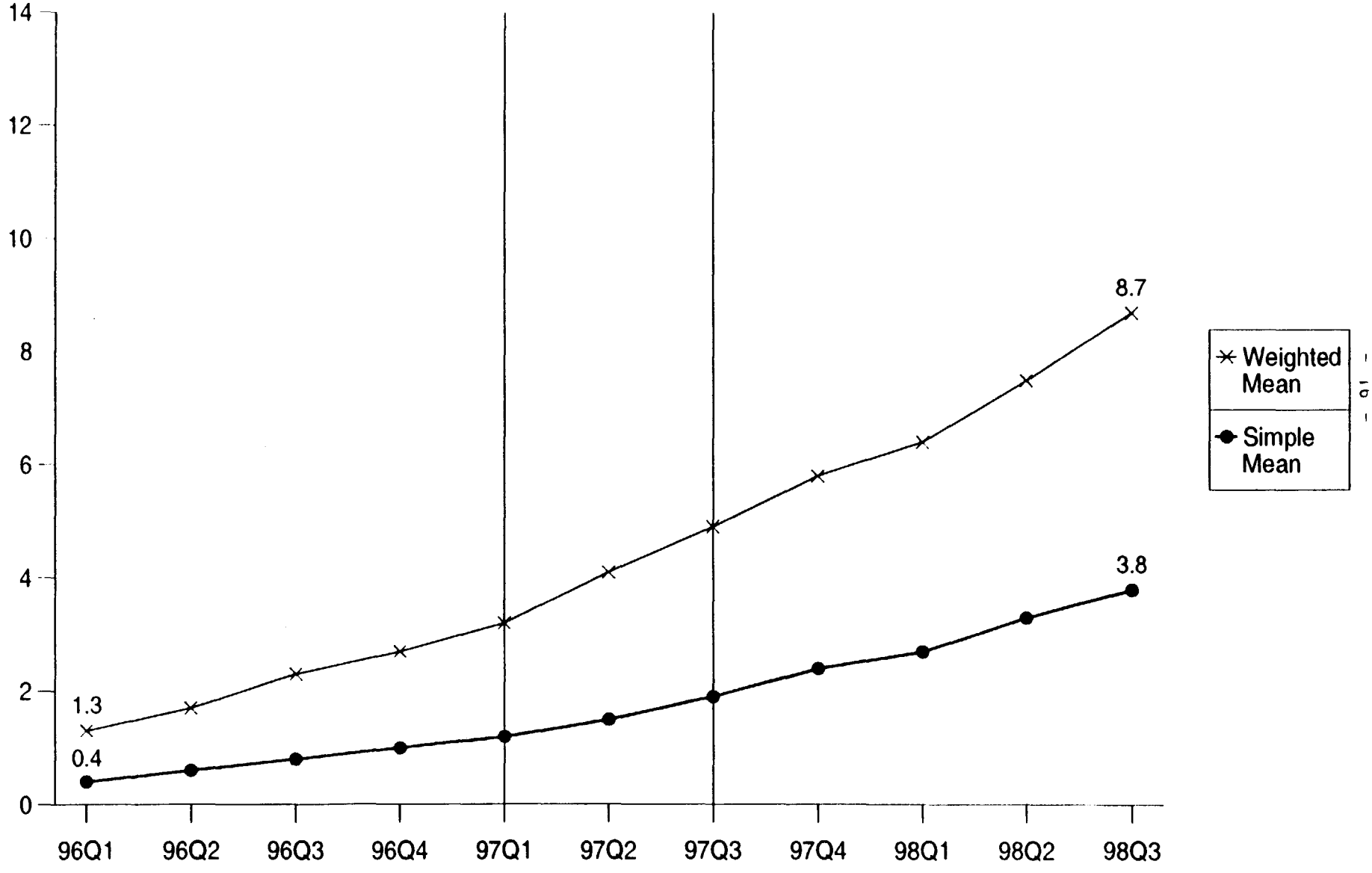
21. The SBC/PacTel merger was completed in April 1997 and the Bell Atlantic/NYNEX merger was completed immediately upon FCC approval in August 1997. There are no material difference in the results of any of our analyses if the closing date for SBC/PacTel is used instead of the FCC approval date for evaluating post-merger events.

Figure 1a

Average Number of CLECs Holding Numbering Codes in a LATA

Simple and Population Weighted Means

1996 Q1 - 1998 Q3



Note: Based on CLECs holding numbering codes. FCC approved the SBC/PACTEL merger 1/31/97 and the Bell Atlantic/NYNEX merger 8/14/97.

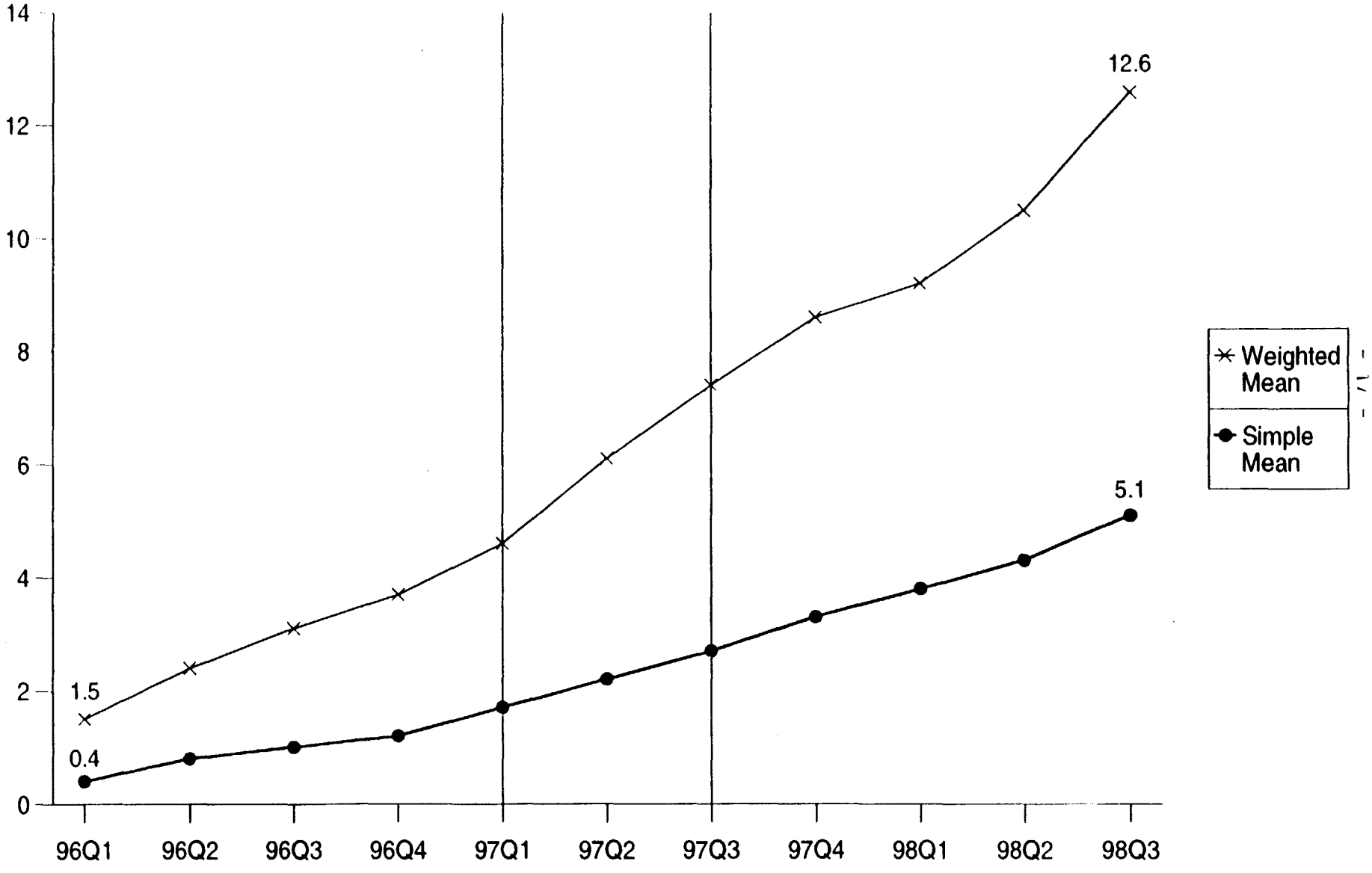
Source: FCC, "Local Competition", Table 4-13.

Figure 1b

Average Number of CLECs Holding Numbering Codes in SBC/PacTel LATAs

Simple and Population Weighted Means

1996 Q1 - 1998 Q3



Note: Based on CLECs holding numbering codes. FCC approved the SBC/PACTEL merger 1/31/97 and the Bell Atlantic/NYNEX merger 8/14/97.

Source: FCC, "Local Competition", Table 4-13.

nationally was 8.7 in the third quarter of 1998, the most recent data available. The comparable figure for SBC/PacTel was 12.6.

39. Thus, nationwide data provide no support for the notion that RBOC mergers harm CLEC activity. Instead, the data show that the number of CLECs holding numbering codes nationwide has continued to grow rapidly since the SBC/PacTel and Bell Atlantic/NYNEX mergers.

C. CLEC ACTIVITY IS NOT LOWER THAN OTHERWISE EXPECTED IN THE SBC/PACTEL AND BELL ATLANTIC/NYNEX REGIONS.

40. The Katz/Salop theory predicts that the SBC/PacTel and Bell Atlantic/NYNEX mergers would deter CLEC activity, especially in LATAs served by the merged firms. We test this hypothesis econometrically in two ways. First, we analyze whether, controlling for other factors, the current level of CLEC activity is lower in LATAs served by SBC/PacTel and Bell Atlantic/NYNEX than in other RBOC territories. Second, we analyze whether the level of CLEC activity in the merged companies' LATAs changed following these transactions, relative to that expected based on trends in otherwise comparable LATAs unaffected by these mergers.

41. The Katz/Salop theory predicts that these adverse effects on CLEC activity should be large, negative and statistically significant. The available evidence is to the contrary.

1. Current CLEC activity in the merged RBOCs' territories is not lower than expected.

42. As described in Section II.A above, we use standard regression techniques to analyze whether the current level of CLEC activity in the SBC/PacTel and Bell Atlantic/NYNEX LATAs is lower than in otherwise comparable LATAs served by other RBOCs. The regression results provide no support for the Katz/Salop hypothesis that the mergers had a systematic and significant negative affect on CLEC activity. There is no statistically significant difference in CLEC activity in the SBC/PacTel and Bell Atlantic/NYNEX territories in 1998Q3 (the most recent

quarter for which data are available) compared to LATAs with similar economic and demographic characteristics served by other ILECs. In fact, the data indicate there are more CLECs than would be expected in SBC/PacTel LATAs compared to LATAs served by other ILECs, controlling for differences in population size, population growth, and area, although this difference is not statistically significant. The regression results are summarized in Figure 2, which graphically demonstrates that the results of the regression analysis are fundamentally at odds with the Katz/Salop hypothesis.

43. Table 1 summarizes the magnitude of the difference between the estimated number of CLECs in SBC/PacTel and Bell Atlantic/NYNEX LATAs compared to otherwise comparable LATAs at various LATA population levels as well as the statistical significance of the these estimated differences. As the table indicates, SBC/PacTel LATAs have, as a simple average, roughly .61 more CLECs than otherwise comparable LATAs served by other ILECs. Calculated on a population-weighted average basis, the regression implies that SBC/PacTel LATAs have 2.72 more CLECs per LATA than elsewhere, not fewer CLECs per LATA, as suggested by the Katz/Salop theory. Bell Atlantic/NYNEX LATAs have .14 more CLECs than otherwise comparable LATAs calculated on a simple-average basis and 1.39 more when calculated on a weighted-average basis. As the tables indicate, the differences in CLEC activity in the merged ILECs' territories and elsewhere at various population levels are not statistically significant.

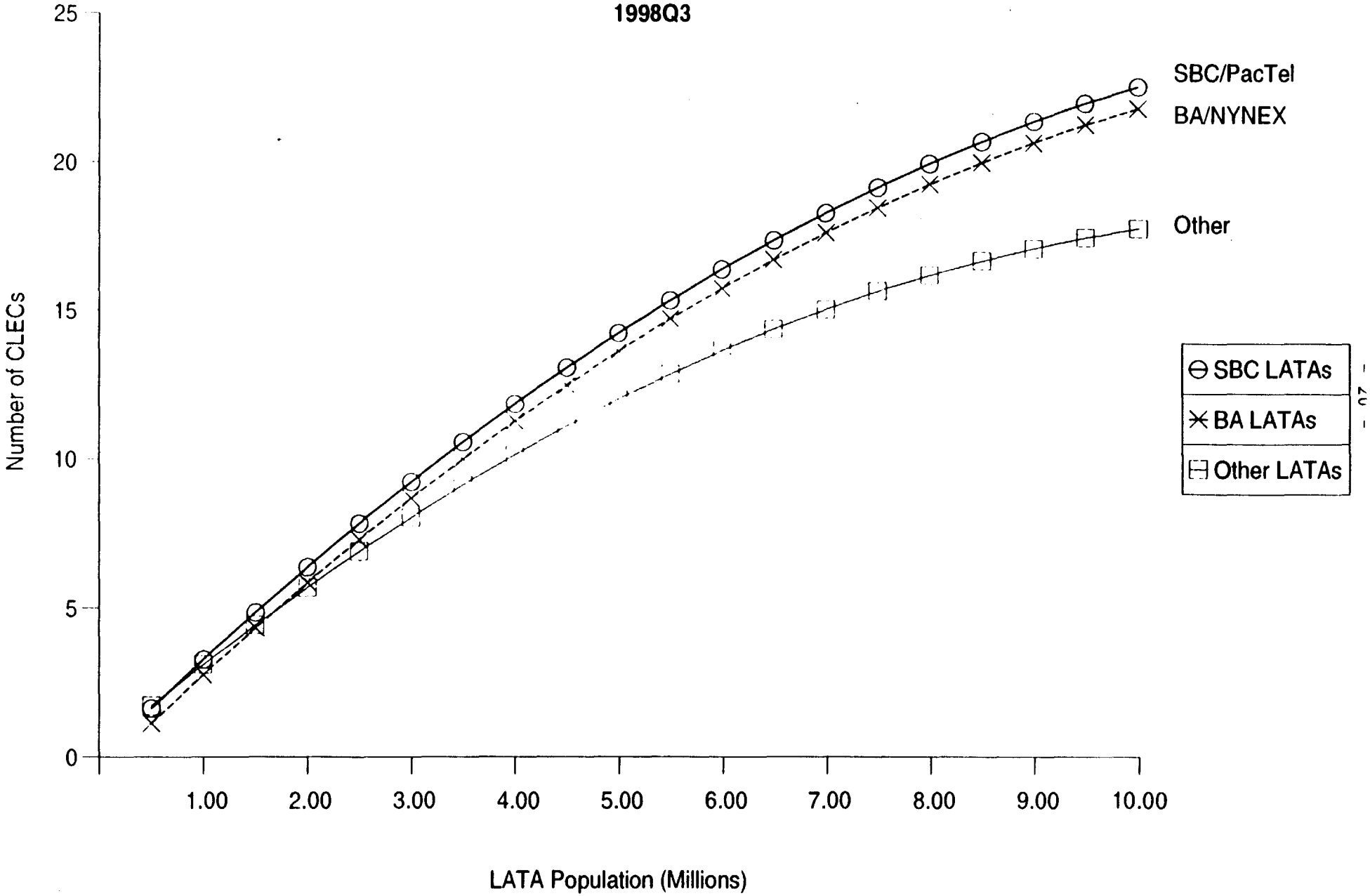
44. In addition to the reported results, we have estimated a variety of alternative model specifications that test the sensitivity of our results to changes in econometric specification. Appendix 2 reports results based on the same regression model when the New York and Los Angeles LATAs are excluded from the analysis. These LATAs are far larger than any others and both are in territories served by the merged ILECs. In theory, their inclusion could skew the results. Exclusion of these LATAs, however, does not affect our conclusion that the evidence fails to support the Katz/Salop theory. We have also analyzed a variety of

Figure 2

Estimated Number of CLECs by LATA Population

SBC/PacTel, BA/NYNEX and Other RBOC LATAs

1998Q3



Notes: Estimates derived from regression estimates.

Table 1

Estimated Difference in CLEC Activity in LATAs Served by Merged ILECs and Other RBOCs

1998Q3

Population (Millions)	SBC/PacTel		Bell Atlantic/NYNEX	
	Difference[1/]	Probability[2/]	Difference[1/]	Probability[2/]
.5	-.08	.84	-.58	.22
1.0	.18	.65	-.33	.39
2.0	.69	.25	.15	.77
3.0	1.20	.20	.64	.47
5.0	2.22	.19	1.61	.35
LATA-Specific Differences				
Mean	.61	-	.14	-
Population-Weighted Mean	2.72	-	1.39	-
Combined Significance	-	.41	-	.42

1/ Difference between actual and expected number of CLECs predicted based on regression analysis.

2/ * indicates difference is statistically significant at 5 percent confidence level. The probability reflects the chance that the calculated difference would be observed by chance if the true difference was zero.

additional specifications, such as excluding small CLECs that hold numbering codes in fewer than four LATAs. Again, our conclusions remain unaffected. We also have repeated this analysis using data from 1998Q1 and 1998Q2. Results for these time periods similarly fail to provide support for the Katz/Salop hypothesis and indicate that CLEC activity in the merged companies' territories is generally higher than elsewhere, but that these differences are not statistically significant.[22]

2. CLEC activity in SBC/PacTel's and Bell Atlantic/NYNEX's areas has not diminished over time.

45. We next test whether CLEC activity in SBC/PacTel and Bell Atlantic/NYNEX LATAs which our analysis finds to be greater than in comparable areas in 1998Q3 (though not by a statistically significant amount), had nonetheless fallen since these firms' mergers relative to CLEC activity in otherwise comparable LATAs served by other ILECs. The Katz/Salop theory would predict a large and statistically significant decrease in CLEC activity in the merged companies territories.[23] Once again, however, the evidence contradicts the theory.

46. To perform this analysis, we use the cross-section regression framework described above applied separately using data from each calendar quarter between 1996Q1 and 1998Q3. This statistical approach explicitly accounts for changes over time in CLEC activity and the fact that these increases have been more pronounced in more populous LATAs.[24]

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22. When data from the three quarters in 1998 are included in estimation, the positive estimated SBC/PacTel effect is statistically significant in LATAs with population of more than 2 million. The Bell Atlantic/NYNEX effects remain statistically insignificant.
23. Hayes, Jayaratne and Katz appear to anticipate the conclusion that there is no systematic decline in the merged companies' LATAs in arguing that time series evidence is inherently limited. (p. 22) The period before and after these mergers, however, has been one of rapid and dramatic increases in CLEC activity. The effects of significant adverse incentives should be readily identifiable under such circumstances.
24. The estimated difference in CLEC activity in the merged ILECs' territories is estimated separately for each calendar quarter. We again account for the fact that the estimated "SBC/PacTel effect" and "Bell Atlantic/NYNEX" effect may differ in more and less populous LATAs. We test and accept (i.e., fail to reject) the hypothesis that the "SBC/PacTel" effect is the same in each pre-merger quarter and, as a result, impose this restriction in further

47. We then assess: (i) the increase in CLEC activity in LATAs served by SBC/PacTel and Bell Atlantic/NYNEX following their respective mergers; and (ii) the increase that would have been expected for LATAs with similar characteristics served by other RBOCs. As discussed above, if the Katz/Salop hypothesis has merit, the increase over time in CLEC activity in the merged companies' LATAs would be significantly lower than that observed in otherwise similar areas served by other RBOCs.[25]

SBC/PacTel

48. CLEC activity in the SBC/PacTel LATAs, if anything, grew more rapidly than in otherwise comparable LATAs, and taken as a whole, the differences are statistically significant. Thus, again, the results refute the Katz/Salop theory.

49. As Figure 3 indicates, the regression model reveals virtually no estimated difference in CLEC activity between SBC/PacTel LATAs and other ILEC LATAs in 1996Q3.[26] (See the lower two lines in Figure 3.) In 1998Q3, the estimated number of CLECs increased dramatically at all population levels relative to two years earlier but CLEC activity in SBC/PacTel LATAs rose even more than elsewhere over this period (i.e., SBC's 1998 line lies above the other 1998 line).

50. The relative increase in CLEC activity, calculated both as a simple average and a population-weighted average across LATAs, is reported in Table 2. The results indicate that the number of CLECs in LATAs served by SBC/PacTel increased by .52 more than in LATAs served

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(...continued)
estimation. Similarly, we test and accept the hypothesis that the "SBC/PacTel" effect is the same in each post-merger quarter and also impose this restriction in estimation. Similar tests are performed with respect to the "Bell Atlantic/NYNEX" effects. We impose similar restrictions in estimation after accepting the hypotheses that the Bell Atlantic/NYNEX effects are equal within the pre-merger period and within the post-merger period.

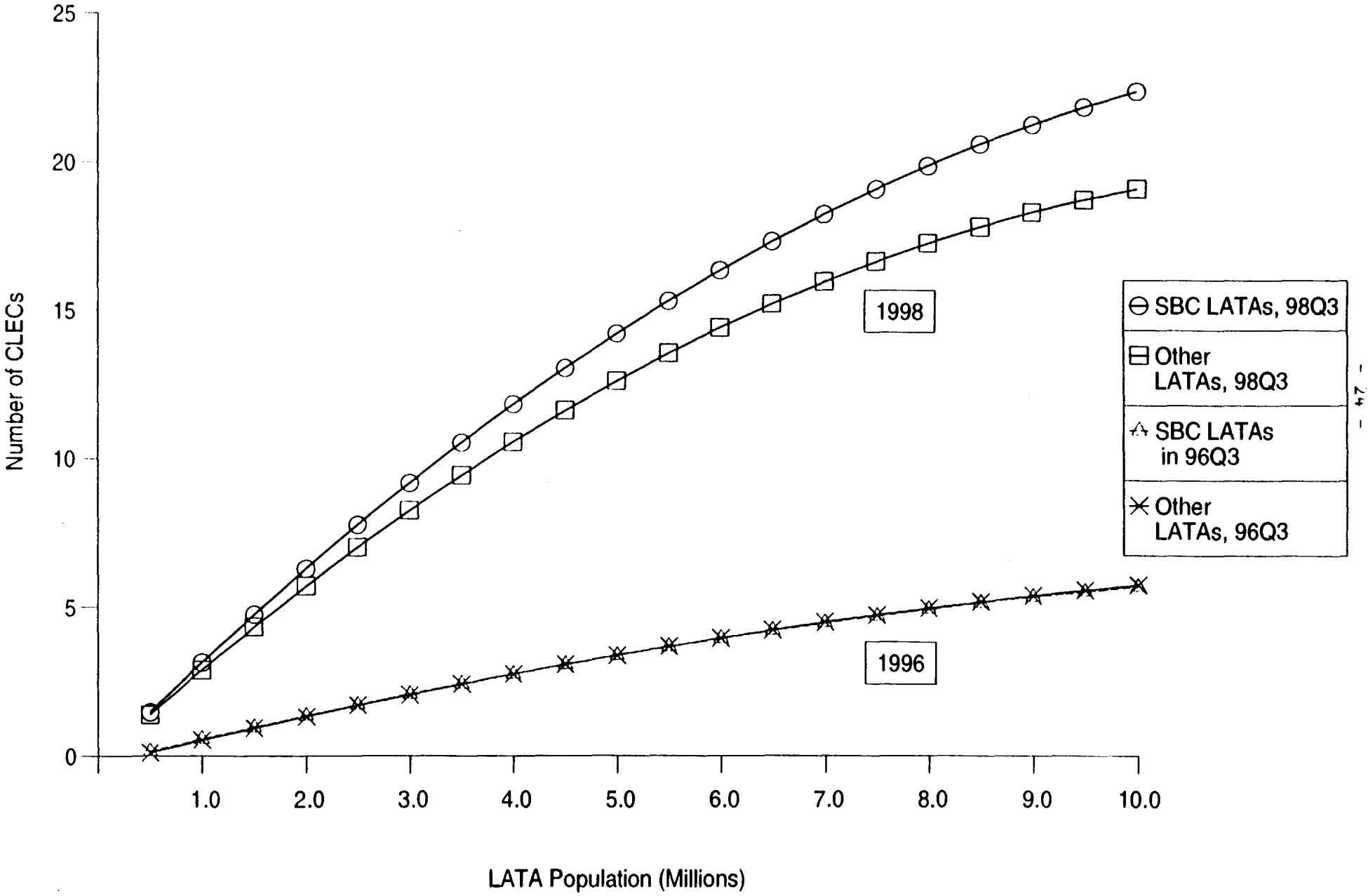
25. Because we allow the estimated "SBC/PacTel effect" and "Bell Atlantic/NYNEX effect" to vary for larger and smaller LATAs, we can perform this comparison separately for larger and smaller LATAs.

26. These estimates are calculated assuming that other LATA characteristics, such as population growth and area are held at the sample means.

Figure 3

Estimated Number of CLECs by LATA Population: 1996Q3 and 1998Q3

SBC/PacTel and Other LATAs



Notes: Estimates derived from regression estimates.

Table 2

Estimated Growth in CLEC Activity in LATAs Served By SBC/PacTel Relative to Growth in Other LATAs

Quarter-Specific Regressions: 1996Q1-1998Q3

Population (Millions)	Difference[1/]	Probability[2/]
.5	.05	.72
1.0	.22	.09
2.0	.57	.01*
3.0	.91	.01*
5.0	1.60	.01*
LATA-Specific Differences		
Mean	.52	-
Population-Weighted Mean	1.94	-
Combined Significance	-	.02*

1/ Difference reflects increase in the number of CLECs following relevant merger date relative to increase expected absent merger (based on activity in other LATAs).

2/ * indicates difference is statistically significant at 5 percent confidence level. The probability reflects the chance that the calculated difference would be observed by chance if the true difference was zero.

by other ILECs when calculated as a simple average over SBC/PacTel LATAs and by 1.94 more than elsewhere when calculated as a population-weighted average.

51. Table 2 also reports the magnitude and statistical significance of differences in the increase in CLEC activity in LATAs served by SBC/PacTel and other LATAs following the firms' merger evaluated at different levels of LATA population. The results indicate that the relative increase in CLEC activity in the SBC/PacTel areas compared to that expected based on CLEC activity elsewhere is statistically significant overall and is also statistically significant in LATAs with population levels of two million or greater.[27]

Bell Atlantic/NYNEX

52. The results for Bell Atlantic/NYNEX also contradict the Katz/Salop theory that CLEC activity would fall relative to the level otherwise expected following these firms' merger. Figure 4 and Table 3 summarize the results of our analysis and compare changes over time in CLEC activity in LATAs served by Bell Atlantic/NYNEX compared to those served by other ILECs. Taking all LATAs as a whole, CLEC activity in the Bell Atlantic/NYNEX territories increased by .08 more than expected based on otherwise comparable LATAs following the Bell Atlantic/NYNEX merger, as calculated on a simple average basis. On a population-weighted average basis, the increase in CLEC activity in LATA served by Bell Atlantic/NYNEX was roughly .77 more than expected based on other otherwise comparable LATAs.[28]

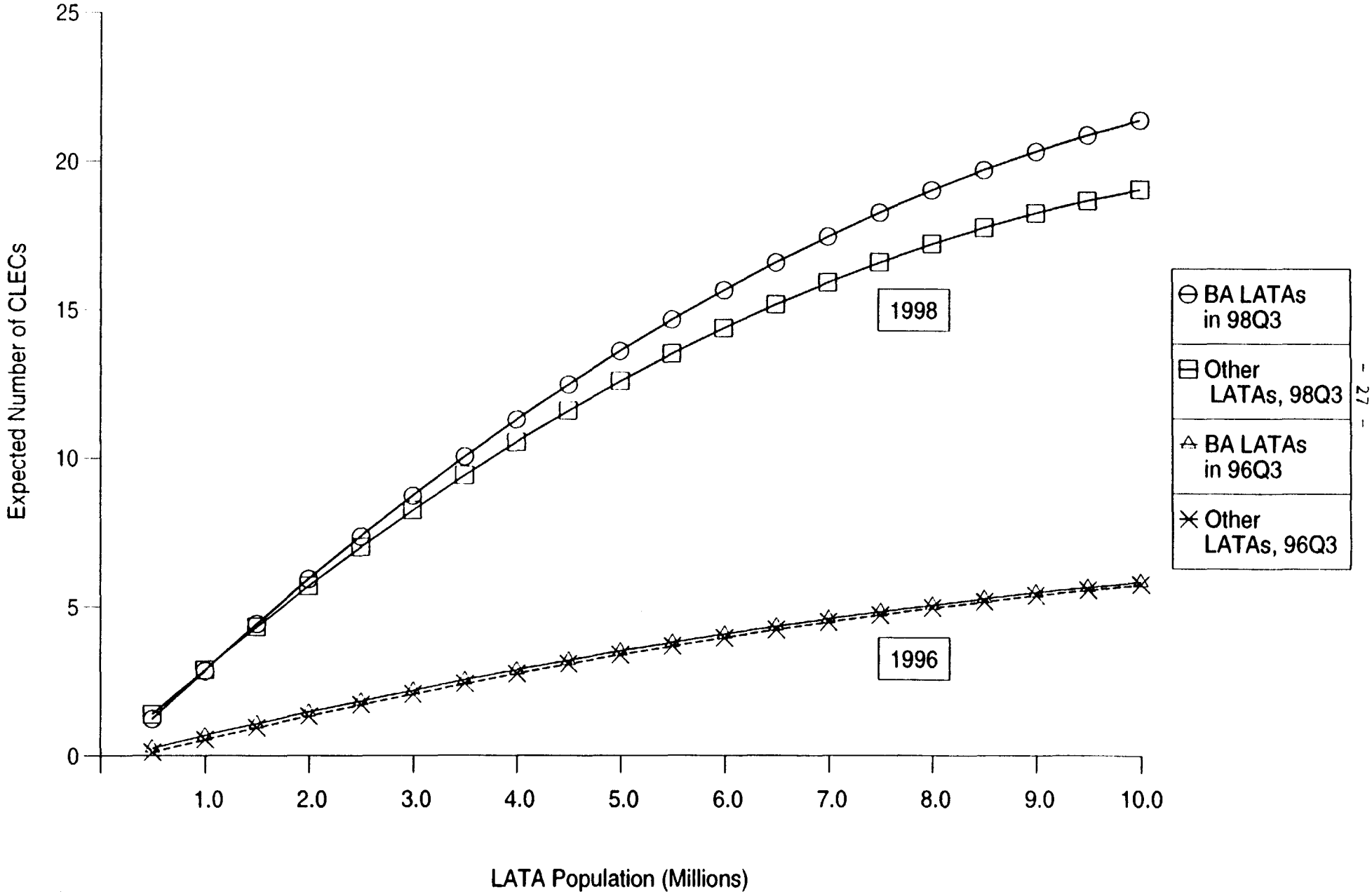
53. Table 3 reports the magnitude and statistical significance of differences in the increase in CLEC activity in LATAs served by Bell Atlantic/NYNEX and others following these

27. We have also analyzed several alternative econometric specifications to test the sensitivity of these results. Appendix 3 reports results that exclude the New York and Los Angeles LATAs from the analysis. This modification again does not alter our conclusions with respect to the impact of either the SBC/PacTel or Bell Atlantic/NYNEX mergers on CLEC activity.
28. In LATAs with population of more than roughly 1.5 million, CLEC activity grew more rapidly in Bell Atlantic/NYNEX territories than elsewhere following these firms' merger. In smaller LATAs, CLEC activity grew a bit more slowly in Bell Atlantic/NYNEX LATAs compared to otherwise comparable LATAs served by non-merged ILECs in LATAs. None of these differences is statistically significant at the five percent level.

Figure 4

Estimated Number of CLECs by LATA Population: 1996Q3 and 1998Q3

BA/NYNEX and Other LATAs



Notes: Estimates derived from regression estimates.

Table 3

Estimated Growth in CLEC Activity in LATAs Served By Bell Atlantic/NYNEX Relative to Growth in Other LATAs

Quarter-Specific Regressions: 1996Q1-1998Q3

Population (Millions)	Difference[1/]	Probability[2/]
.5	-.31	.10
1.0	-.18	.27
2.0	.09	.68
3.0	.35	.29
5.0	.89	.15
LATA-Specific Differences		
Mean	.08	-
Population-Weighted Mean	.77	-
Combined Significance	-	.15

1/ Difference reflects increase in the number of CLECs following relevant merger date relative to increase expected absent merger (based on activity in other LATAs).

2/ * indicates difference is statistically significant at 5 percent confidence level. The probability reflects the chance that the calculated difference would be observed by chance if the true difference was zero.

firms' merger. Although the increase in CLEC activity in Bell Atlantic/NYNEX LATAs is not statistically significant, the data reveal no systematic and statistically significant decline in CLEC activity in the merged companies' LATAs relative to elsewhere following the merger and thus provide no support for the Katz/Salop hypothesis.

Additional Specification

54. Hayes, Jayaratne and Katz claim that a relative decline in CLEC activity in PacTel's area following the SBC merger provides support for the Katz/Salop hypothesis. This conclusion, however, reflects Hayes, Jayaratne and Katz's failure to perform a comprehensive analysis of CLEC entry patterns, such as that presented above. In order to analyze their claim that CLEC activity fell post merger in some areas, we have estimated an additional specification to analyze post-merger effects separately in areas served by PacTel, SBC, Bell Atlantic and NYNEX. We stress that this alternative model is improper because the Katz/Salop hypothesis predicts that ILEC mergers will adversely affect CLEC activity throughout the entire territory (i.e., footprint) of a merged ILEC, not in just one portion of the merged firm's territory. The results presented above examine the post-merger effect throughout the entire ILEC region.

55. The results of this improper approach reveal that CLEC activity post-merger in PacTel's area continues to grow. While the rate of growth slowed relative to the national trend, this relative decline is not statistically significant in high population LATAs. The results also reveal a significant increase in CLEC activity in SBC areas relative to elsewhere and no systematic or statistically significant patterns in areas served by Bell Atlantic and NYNEX. In summary, even this improper approach fails to provide systematic justification of the Katz/Salop theory. CLEC activity falls relative to the national trend in only 1 of 4 possible regions post-merger and even this result is not statistically significant in all LATAs.[29]

29. Moreover, this additional specification analysis shows that CLEC activity in the PacTel areas was higher pre-merger than in other areas and that CLEC activity in SBC areas was somewhat lower. Roughly speaking, CLEC activity in SBC and PacTel LATAs converged by

D. CLEC ACTIVITY IS NOT HIGHER IN LATAS SERVED BY INDEPENDENT ILECS AND IN LATAS SERVED BY MULTIPLE ILECS.

1. CLEC activity in LATAs served by independent ILECs

56. At the recent FCC Roundtable, Professor Katz suggested that CLECs have had particular success in providing service in independent ILECs' territories. He noted that:

> ... the studies are preliminary and some of the results are mixed, but it has also been coming out that by some rather imperfect measures, the small ILECs ... have had more entry adjusting for market size.[30]

Prof. Katz suggested that such a finding would provide support for his theory that larger ILECs (such as RBOCs) have greater incentives to discriminate than smaller ILECs. Even with Prof. Katz's highly qualified language, the statement is not supported by an evaluation of the available empirical evidence.

57. We have tested Professor Katz's claim econometrically by performing a regression analysis comparing CLEC activity in LATAs predominantly served by independent ILECs and otherwise comparable LATAs served by RBOCs. As in the regression analyses presented in Section II.B above, the analysis focuses on CLEC activity in 1998Q3 and controls for population, population growth, and the area of the LATA.[31] The analysis permits the estimated difference in CLEC activity in LATAs predominantly served by independent ILECs and RBOCs to vary with LATA population. That is, the model permits the "small ILEC" effect to differ in more and less populous LATAs. The prediction of the Katz/Salop theory is that the

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(...continued)
1998Q3 at a level somewhat above the average for other LATAs. Section II.C.2 above shows that CLEC activity is generally higher in the SBC and PacTel areas than in areas served by other RBOCs, although these differences are not statistically significant.

30. FCC Roundtable transcript, p. 134.

31. The regression excludes the SBC/PacTel and Bell Atlantic/NYNEX effects in order to provide a more general comparison of CLEC activity in LATAs served by small ILECs compared to that in all RBOC territories. Inclusion of these effects does not alter our conclusion that there is no statistically significant elevation in CLEC activity in LATAs served by independent ILECs.

differences in CLEC activity between areas with independent ILECs and RBOCs should be systematically positive, large and statistically significant.

58. The results do not support Prof. Katz's claim. The regression results, summarized in Figure 5 and Table 4, demonstrate that, all else equal, CLEC activity in LATAs served by independent ILECs is not systematically higher in LATAs served by independent ILECs compared to others. Differences in CLEC activity in independent ILEC territories and RBOC territories are only significant in small LATAs, where there is less CLEC activity in areas served by independent ILECs than elsewhere. At larger population levels, the differences are not statistically significant.

59. The analysis reported in Table 4 above treats GTE as a "small" ILEC, an assumption based on its dispersed operation. We also report results that exclude GTE as a small ILEC. This change does not affect our conclusion that, in contrast to the prediction of the Katz/Salop hypothesis, CLEC activity is not systematically higher in areas served by independent ILECs compared to those served by RBOCs.

60. Hayes, Jayaratne and Katz suggest that the (claimed) high levels of CLEC activity in areas served by Frontier, Cincinnati Bell and SNET provide support for the Katz/Salop hypothesis. This conclusion again reflects the inappropriate use of anecdotes instead of systematic statistical analysis. Hayes, Jayratne and Katz, for example, fail to control for other factors that affect CLEC activity in areas served by the ILECs and do not analyze the statistical significance of the claimed differences.[32] They also fail to mention that CLECs activity in areas served by other independent ILECs, including Sprint, is lower than expected. The appropriate

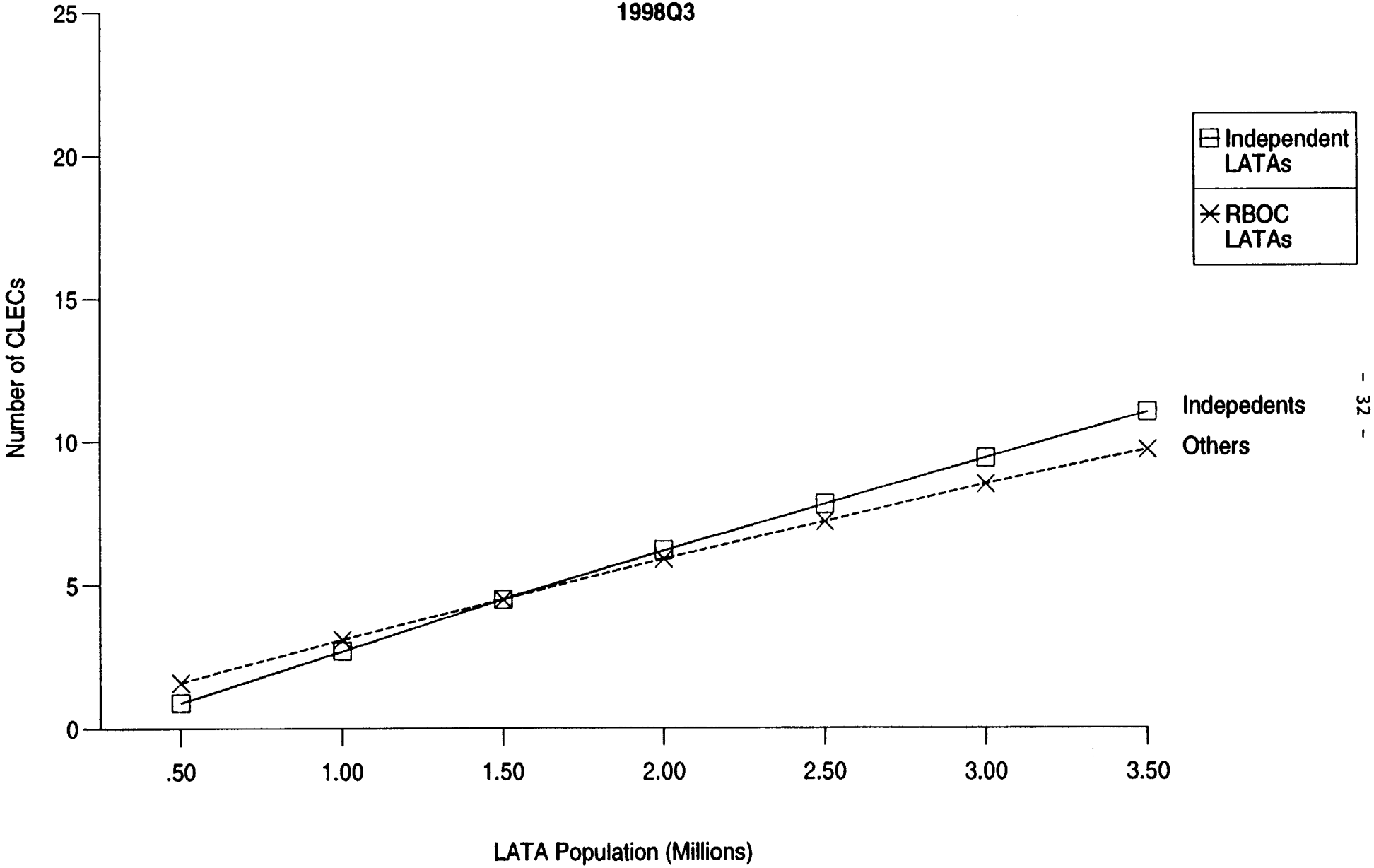
32. We have also estimated a regression analysis using dummy variables for LATAs served by each major independent ILEC (including those discussed by Hayes, Jayaratne and Katz and others) that includes the economic and demographic factors considered in our other regressions. The results indicate that only the elevation for Frontier approaches statistical significance (and even this is not significant at standard confidence levels). Furthermore, the hypothesis that the coefficient on all independent ILEC-specific dummy variables is zero cannot be rejected at standard confidence levels. We stress again that this regression analysis is improper because there is no reason under the Katz/Salop hypothesis to distinguish these independent ILECs from others. Still, even this improper approach fails to support their claims.

Figure 5

Estimated Number of CLECs by LATA Population

Independent LECs and RBOCs

1998Q3



Notes: Estimates derived from regression estimates. Independent LECs are GTE, Sprint, SNET, Frontier, Cincinnati Bell, Aliant, Shenadoah Tel Co, Citizens Telecom, United Inter-Mtn Tel, Ill Consolidated Tel, and Navajo Comm Co.

Table 4

Estimated Difference in CLEC Activity in LATAs Served by Small ILECs and RBOCs

Population (Millions)	Including GTE as "Small"		Excluding GTE as "Small"	
	Difference[1/]	Probability[2/]	Difference[1/]	Probability[2/]
.5	-.71	.02*	-.81	.06
1.0	-.37	.35	-.66	.14
2.0	.30	.71	-.38	.61
3.0	.97	.46	-.10	.93
LATA-Specific Differences				
Mean	-.62	-	-.72	-
Population-Weighted Mean	-.09	-	-.52	-
Combined Significance	-	.03*	-	.17

1/ Difference between actual and expected number of CLECs predicted based on regression analysis.

2/ * indicates difference is statistically significant at 5 percent confidence level. The probability reflects the chance that the calculated difference would be observed by chance if the true difference was zero.

econometric specification is the one reported above, which evaluates whether CLEC activity in areas served by independent ILECs (taken as a whole) is significantly different than elsewhere.

2. CLEC activity in LATAs served by multiple ILECs

61. The Katz/Salop theory implies that an ILEC in a LATA also served by other ILECs will have a weaker incentive to discriminate because it will not be able to capture all of the benefits resulting from the discrimination. In contrast, ILECs that provide virtually all service in a LATA would be able to capture all of the benefits and (supposedly) would have a greater incentive to discriminate. Our analysis, using the most recent data available (1998Q3) demonstrate that, here too, available data provide no support for the Katz/Salop theory.

62. As described above, we use information on the population served by wire center to approximate various ILECs' shares of access lines served within each LATA. In turn, we use this information to estimate a LATA-specific HHI (the sum of the squares of populations shares served by each of the ILECs within a LATA).[33] This HHI, in turn, is used as an additional variable in using the regression framework outlined above. Again, we allow the impact of HHI to vary with the population of the LATA, to allow the estimated effect of multiple ILECs in a LATA on CLEC activity to differ in large and small LATAs.

63. The analysis reveals that CLEC activity is no different in LATAs served by multiple ILECs compared to those in which one ILEC serves nearly the entire population. The HHI variables do not significantly improve the ability of the regression analysis to explain CLEC activity. Evaluation of the (statistically insignificant) HHI effects reveals virtually no difference in CLEC activity in LATAs served by two equal size ILECs instead of one. Again, these results fail to provide any support for the Katz/Salop hypothesis.

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33. If a LATA is served by only one ILEC, the HHI takes on a value of 1; if a LATA is served by two equally-sized ILECs, the HHI takes on a value of .5.

CONCLUSION

64. This memorandum addresses the claim by Profs. Katz and Salop that the SBC/Ameritech merger will lead to increased discrimination against CLECs seeking to enter the local exchange business on a multi-market basis. Our analysis indicates that, as a matter of economic theory, the Katz/Salop hypothesis is based on erroneous assumptions about current conditions in the marketplace for local exchange services. We also show that available empirical evidence fails to support their claim that ILEC mergers adversely affect CLEC activity. Accordingly, their theory should be rejected as a basis for opposing this merger.

65. From a theoretical perspective, the Katz/Salop theory suffers from several significant shortcomings:

- Their theory does not apply to firms that have sunk investments in the "set up" costs that give rise to economies of scope, including the significant number of CLECs that have already deployed facilities and services, and does not imply that activity by such firms will be harmed by the transaction. Indeed, the entry of these firms has already occurred (and thus cannot be precluded) and reduces ILECs' incentives to discriminate against other entrants.
- CLEC entry to date has resulted in the development of interconnection agreements and performance standards that would enable CLECs and regulators to detect discrimination against new CLECs or attempts to increase discrimination against existing CLECs.

66. From an empirical perspective, the evidence provides no supports for the Katz/Salop hypothesis:

- CLEC activity continued to grow nationwide following the SBC/PacTel and Bell Atlantic/NYNEX mergers.
- The current level of CLEC activity in SBC/PacTel and Bell Atlantic/NYNEX regions is not lower than CLEC activity in LATAs served by other ILECs, controlling for

differences in the economic and demographic characteristics of the areas. If anything, the evidence indicates that CLEC activity is higher.

- CLEC activity in SBC/PacTel and Bell Atlantic/NYNEX LATAs did not increase more slowly (and indeed, in some respects increased more rapidly) than elsewhere following these companies' mergers, controlling for LATA characteristics.
- In contrast to Prof. Katz's suggestion, CLEC activity is not systematically or statistically significantly higher in LATAs served by independent ILECs compared to otherwise comparable areas served by RBOCs.

67. Each of these findings alone is inconsistent with the Katz/Salop theory and taken together indicate that the Katz/Salop hypothesis provides no basis for opposing this merger.